Wisconsin
Department of Commerce

Evaluation # 200208-I (Replaces 960047-I)

Safety & Buildings Division
201 West Washington Avenue
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Wisconsin
Building Products Evaluation

Material	Parex Water Master Exterior Insulation and Finish System
Manufacturer	Parex, Inc. P.O. Box 189 Redan, GA 30074

SCOPE OF EVALUATION

GENERAL: This report evaluates the use of Parex Water Master Exterior Insulation and Finish System as an exterior wall veneer through a review of the surface-burning characteristics, wind load resistance and weathering data.

The **UDC** requirements below are in accordance with the current Uniform Dwelling Code (for 1 & 2 family dwellings):

- **Foam Plastic Board:** The foam plastic board, with drainage configuration, used with the Parex Water Master Exterior Insulation and Finish System is identified as AFM Expanded Polystyrene Board (Type WSG), produced by AFM® Corporation was evaluated under the foam plastic requirements in accordance with **s. Comm 21.11(1)**.

The **Comm** requirements below are in accordance with the current Wisconsin Building And Heating, Ventilating And Air Conditioning Code:

- **Foam Plastic Board:** The foam plastic board, with drainage configuration, used with the Parex Water Master Exterior Insulation and Finish System is identified as AFM Expanded Polystyrene Board (Type WSG), produced by AFM® Corporation was evaluated under the foam plastic requirements in accordance with **s. Comm 51.06(2**), **s. Comm 51.06(3).**

The **IBC** requirements below are in accordance with of the Wisconsin Amended ICC 2000 Code (**effective 7/1/02**):

- **Foam Plastic Board:** The foam plastic board, with drainage configuration, used with the Parex Water Master Exterior Insulation and Finish System is identified as AFM Expanded Polystyrene Board (Type WSG), produced by AFM® Corporation was evaluated under the foam plastic requirements in accordance with **ss. IBC 2603.1**, **2603.2**, **2603.3**, **2603.4**.

NOTES: 1) Installation of Parex Water Master EIF System as a component of fire-resistance rated assemblies is outside the scope of this evaluation. 2) Structural performance of the panels is outside the scope of this evaluation and is subject to specific evaluation and approval by the code official.

DESCRIPTION AND USE

General: The Parex Water Master Exterior Insulation and Finish System functions as a non-load bearing multi-component exterior wall veneer system. The system consists of a drainage configuration expanded polystyrene foam plastic board, mechanical fasteners, Parex reinforcing mesh, Parex base coat, and Parex finish coat. The system is mechanically fastened over a water resistive barrier installed over the building substrate and incorporates flashing, weeps and drainage channels to direct water that may penetrate the system to the exterior.

System Components:
Expanded Polystyrene Drainage Configuration: The foam plastic board consists of a rigid expanded polystyrene foam plastic with a nominal density of 1.0 lb/ft^3. The board is formed with ¼-inch deep continuous channels in the back side of the board that are intended to provide a means for directing the flow of moisture from behind the system. The board is produced in 24 x 48 inch sheets, in thickness of 1-1/2 to 4 inches.

The foam plastic board, with drainage configuration, used with the Parex Water Master Exterior Insulation and Finish System is identified as AFM Expanded Polystyrene Board (Type WSG), produced by AFM® Corporation.

Mechanical Fasteners: Mechanical fasteners shall have a corrosion protection coating in accordance with ASTM B117, and shall be Parex 367 Wind Devil fasteners manufactured by Wind-Lock™ Corporation. For wood stud framing, the fasteners shall be #8, Type W bugle head screws with 1-3/3-inch diameter Wind Devil plates, with screw length as required to achieve a minimum penetration of 1-inch into the framing or ½-inch through the solid sheathing. For structural wood panel sheathing, the fasteners shall be #8, Type W bugle head screws with 1-3/4-inch diameter Wind Devil plates, with screw length as required to achieve minimum penetration of 1/2-inch past the solid sheathing.

Water Resistive Barrier: The water resistive barrier installed behind the EIFS shall comply with the requirements of ASTM D226 for Type 1 paper.

Reinforcing Mesh: The reinforcing mesh used with this system is an open-weave, glass fiber mesh, white in color, and treated for alkali resistance. The mesh shall be installed completely embedded within the base coat, to provide resistance from impact to the system. The mesh is manufactured in various weights, thread count and sizes. The Parex Standard Non-woven Mesh 353 shall be the minimum type used to provide base coat reinforcement for the EIF System. The meshes, except the Parex Long Detail Mesh 355 and Short Detail Mesh 356, are intended for use when additional resistance to impact is desired. The Detail Meshes shall be used to provide reinforcement for special shapes and details. See Table 1 below for reinforcing mesh sizes.

Table 1 Reinforcing Mesh Types

Mesh Type	Nominal Weight	Nominal Thread Count	Roll Size
Parex Standard Non-Woven Mesh 353	6 oz/yd^2	10 x 6	39 in. x 150 ft.
Parex Ultra High Impact 20 Mesh 358.20	20.5 oz/yd^2	12 x 3	38 in. x 75 ft.
Parex Long Detail Mesh 355 and Short Detail Mesh 356	4.5 oz/yd^2	12 x 6	38 in. x 150 ft. 48 in. x 150 ft. 72 in. x 150 ft.
Parex Corner Mesh 357	7.2 oz/yd^2	9.4 x 3.4	38 in. x 75 ft.
Parex Intermediate Impact Mesh 358.10	10.0 oz/yd^2	16 x 6	38 in. x 75 ft.
Parex High-Impact 14 Mesh 358.14	14.5 oz/yd^2	16 x 3	38 in. x 75 ft.

Base Coat: Parex Base Coat 301 shall be used as a base coat for this system. The material is a acrylic copolymer emulsion combined with Portland Cement complying with ASTM C150 (Type I or I-II). The base coat mixture is

mixed to a ratio of two parts emulsion to one part Portland Cement, is trowel applied to a minimum total thickness equal to 1.5 times the mesh thickness or 116-inch, whichever is greater.

Finish: The finish material is a ready-mixed 100 percent acrylic copolymer emulsion based coating containing an integral color and crushed marble aggregate. The finish coat is trowel applied to the surface of the base coat. The finish coat protects the base coat from weather exposure.

Table 2

Assembly Description		Maximum Allowable Design Wind Load[1]
Framing:	Nom. 2 x 4 in. wood studs (specific gravity = 0.36), spaced 16 in. o.c.	
Sheathing:	7/16 in. OSB, fastened with 8d nails spaced 8 in. o.c. at the perimeter and 12 in. in the field. Sheathing covered with one layer of Type 15 building paper.	28 lb/ft^2
Foam Plastic:	1-1/2 in. EPS board with drainage channels in rear face.	30 lb/ft^2
Fasteners:	#8 x 2-1/2 in. long Bugle Head coated Type W screws with 1-3/4 in. diameter Wind-Lock Wind Devil plates.	

1. Design wind load is based on ultimate test loads with a factor of safety of 2.5 applied.

TESTS AND RESULTS

Test results of the AFM EPS foam plastic board, performed in accordance with ASTM E84 is on file with the department. The results indicate that the foam plastic board, in thickness up to 4-inches with a nominal density of 1.0 lb/ft^3, exhibited a flame spread index of 25 or less and a smoke-developed index of 450 or less.

LIMITATIONS OF APPROVAL

The limitations under the current **UDC** Uniform Dwelling Code (for 1 & 2 family dwellings), the current **Commerce** Wisconsin Building And Heating, Ventilating And Air Conditioning Code and the **IBC** Wisconsin Amended ICC 2000 Code (**effective 7/1/02**), are as follows:

This evaluation is limited to the Parex Water Master EIF System installed over a water resistive barrier as described in the **DESCRIPTION AND USE** section of this report.

The construction documents shall contain details of the methods used to maintain the weather tightness of all penetrations, and signed and sealed by a registered professional as described in the codes.

The foam plastic board shall be separated from the building interior by ½-inch gypsum wallboard or an equilvalent approved thermal barrier material.

Parex Water Master EIF System shall be limited to installation in areas where the design wind pressure, as calculated in accordance with **s. Comm 21.02(1)(c)** of the current **UDC** Uniform Dwelling Code (for 1 & 2 family dwellings), **s. Comm 53.12(1)** of the current **Commerce** Wisconsin Building And Heating, Ventilating And Air Conditioning Code, **s. 1609.6.2.1** and **s. 1609.2.2** of the **IBC** Wisconsin Amended ICC 2000 Code (**effective 7/1/02**), for components and cladding.

Cement, sand aggregate, retarders, accelerators, fillers, anti-freeze agents or other additives shall not be added to any Parex Water Master EIF System products, except as specifically referenced in this evaluation.

The maximum thickness of foam plastic shall be limited to 4-inches. The minimum thickness shall not be less than 1-1/2-inches.

The foam plastic board shall bear a label in accordance with **s. 1703.5** of the **IBC** Wisconsin Amended ICC 2000 Code (**effective 7/1/02**), and contain the following information:

- Nominal Density: 1.0 lb/ft^3

- Raw Material Type: Expanded Polystyrene
- Molder's Name: AFM Corporation
- Molder's Third Party Labeling Agency: Underwriter's Laboratories, Inc.

The above codes require exterior wall coverings to be weather-resistant and resist wind and rain. Corrosion-resistant flashing shall be provided at the top and sides of all exterior windows and doors and installed in such a manner as to make the opening leak proof. Flashing shall also be installed at all intersections and under windowsills to prevent water intrusion behind the wall veneer.

The EIF System shall be installed in accordance with the manufacturer's installation instructions, *Parex Water Master System Application Guide*, and subject to the limitations of this evaluation. The installation instructions shall be available at the job site at all times.

INFORMATION REQUIRED ON PLANS:

Information required on plans and specifications where Parex Water Master Exterior Insulation and Finish System is proposed shall include but, not limited to, the following:

1. Method of attachment of foam plastic board to substrate;
2. Details of installation at wall openings, corners and panel terminations, including mesh reinforcement;
3. Location and details of all expansion joints;
4. Mechanically fastened systems shall indicate fastener size, type and spacing;
5. Detail section indicating all system components;
6. Details of all penetrations through system, including methods to prevent water penetration into the assembly;
7. Type of water resistive barrier; and
8. The seal and signature of a registered design professional.

This approval will be valid through December 31, 2006, unless manufacturing modifications are made to the product or a re-examination is deemed necessary by the department. The Wisconsin Building Product Evaluation number must be provided when plans that include this product are submitted for review.

DISCLAIMER

The department is in no way endorsing or advertising this product. This approval addresses only the specified applications for the product and does not waive any code requirement not specified in this document.

Revision Date:

Approval Date: February 11, 2002 By: _____

Lee E. Finley, Jr.
Product & Material Review
Integrated Services Bureau

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